

Information Technology and Applications Office (ITAO)

*Accelerating Tomorrow's
Information Technology Systems
and Applications*

Information Technology
for Engineering and Manufacturing

www.atp.nist.gov

1-800-ATP-FUND



Information Technology and Applications Office

- **Vision**

- ATP is the centerpiece of the government's investment in civilian technology in the new millennium

- **Mission**

- Accelerate the development of innovative information technologies and IT applications for broad national benefit through partnerships with the private sector



Investments in Innovative Technologies

Electronics and Photonics (\$329 M)

- Microelectronics
- Optoelectronics
- Optics Technologies
- Power Technologies
- Wireless Electronics
- Organic Electronics

Biotechnology (\$254M)

- DNA Technologies
- Tissue Engineering
- Drug Discovery Methods
- Proteomics
- Medical Devices & Imaging
- Microfluidics

Manufacturing (\$180 M)

Information Technology (\$389 M)

- Advanced Learning Systems
- Component-Based Software
- Digital Video
- Information Infrastructure for Healthcare
- Electronic Commerce
- Dependable Computing Systems
- Technologies for the Integration of Manufacturing Applications

Chemistry and Materials (\$344 M)

- Chemical Processing
- Sensors
- Metabolic Engineering/Catalysis
- Combinatorial Methods
- Separations/Membranes
- Materials Processing
- Advanced Materials
- Nanotechnology
- Material Interfaces



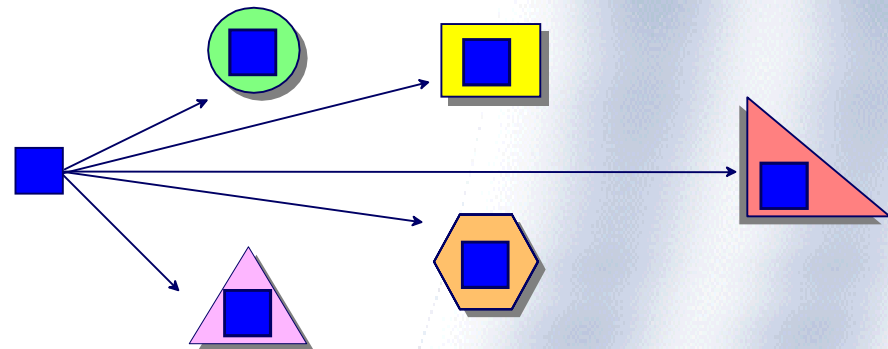
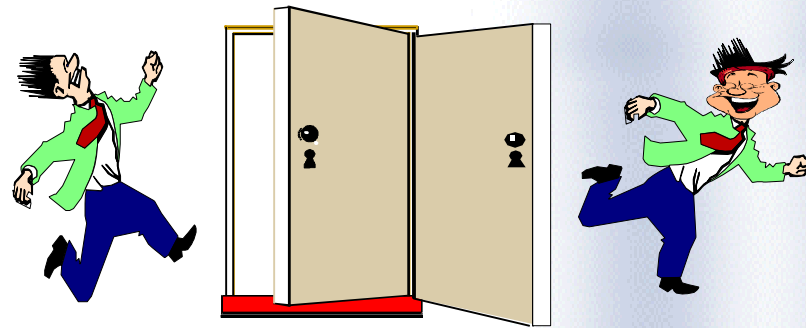
What the ATP Offers

- Early financial support
 - Reduced risk for R&D investment
- Research support
 - Information on assembling a JV
 - Links to additional technical resources
- Recognition
 - Leverage for additional financing
 - External validation
- Independence
 - Companies retain their intellectual property rights

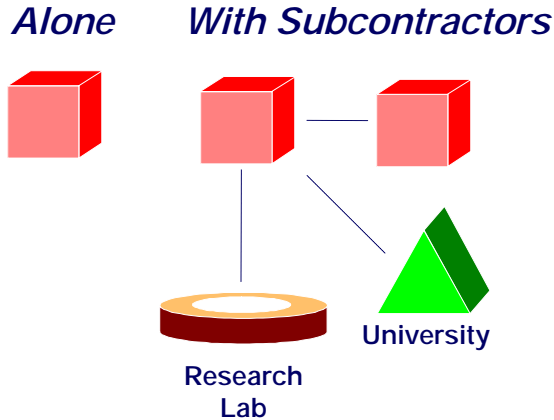


Emphasis on “Enabling” Technologies

- **Pathbreaking** technologies - open up new possibilities
 - Revolutionary
 - Dramatic Improvements in
 - performance
 - cost
 - quality of life
- **Infrastructural** technologies - support R&D, production, and the business of entire industries
- **Multi-use** technologies - have many distinct applications



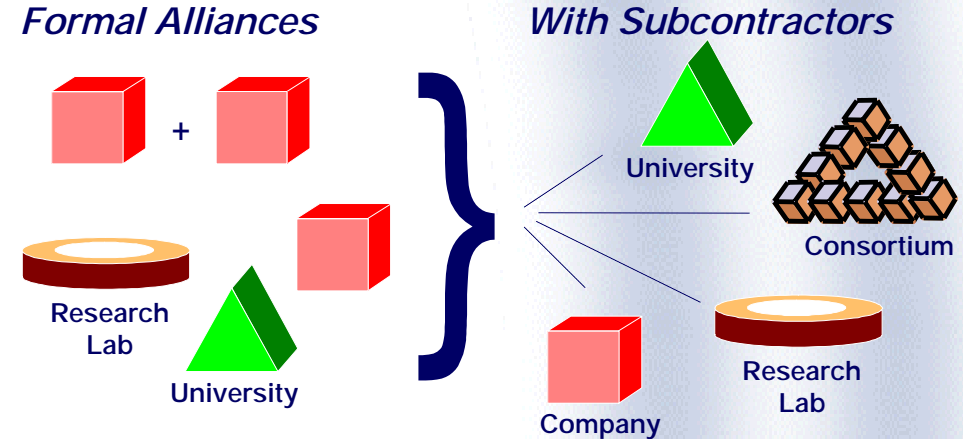
SINGLE COMPANIES



- For-profit company
- 3-year time limit
- \$2M award cap
- Company pays indirect costs
- Large companies cost share >60% of project cost

ATP Eligibility

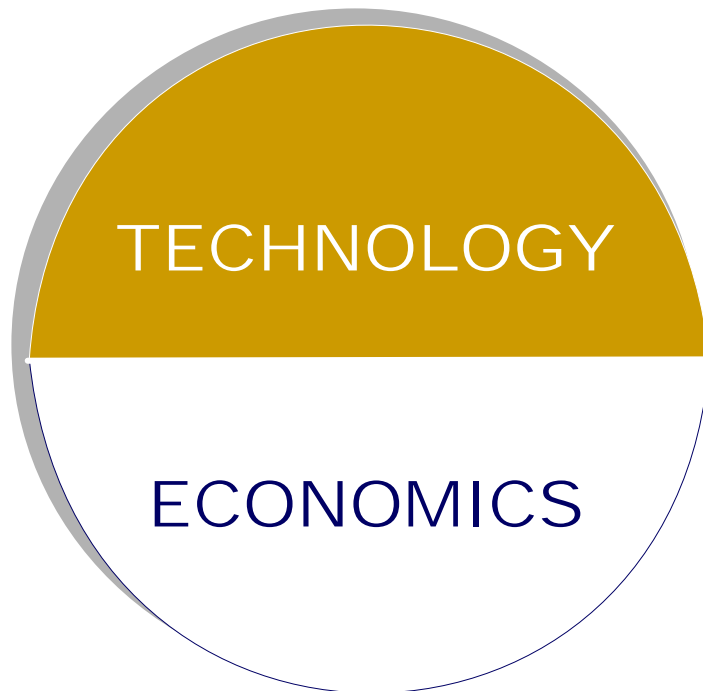
JOINT VENTURES



- At least 2 for-profit companies
- 5-year time limit
- No limit on award amount
- JV share >50% total cost

- Intellectual property is owned by the for-profit companies
- ATP encourages teaming arrangements - most projects involve alliances

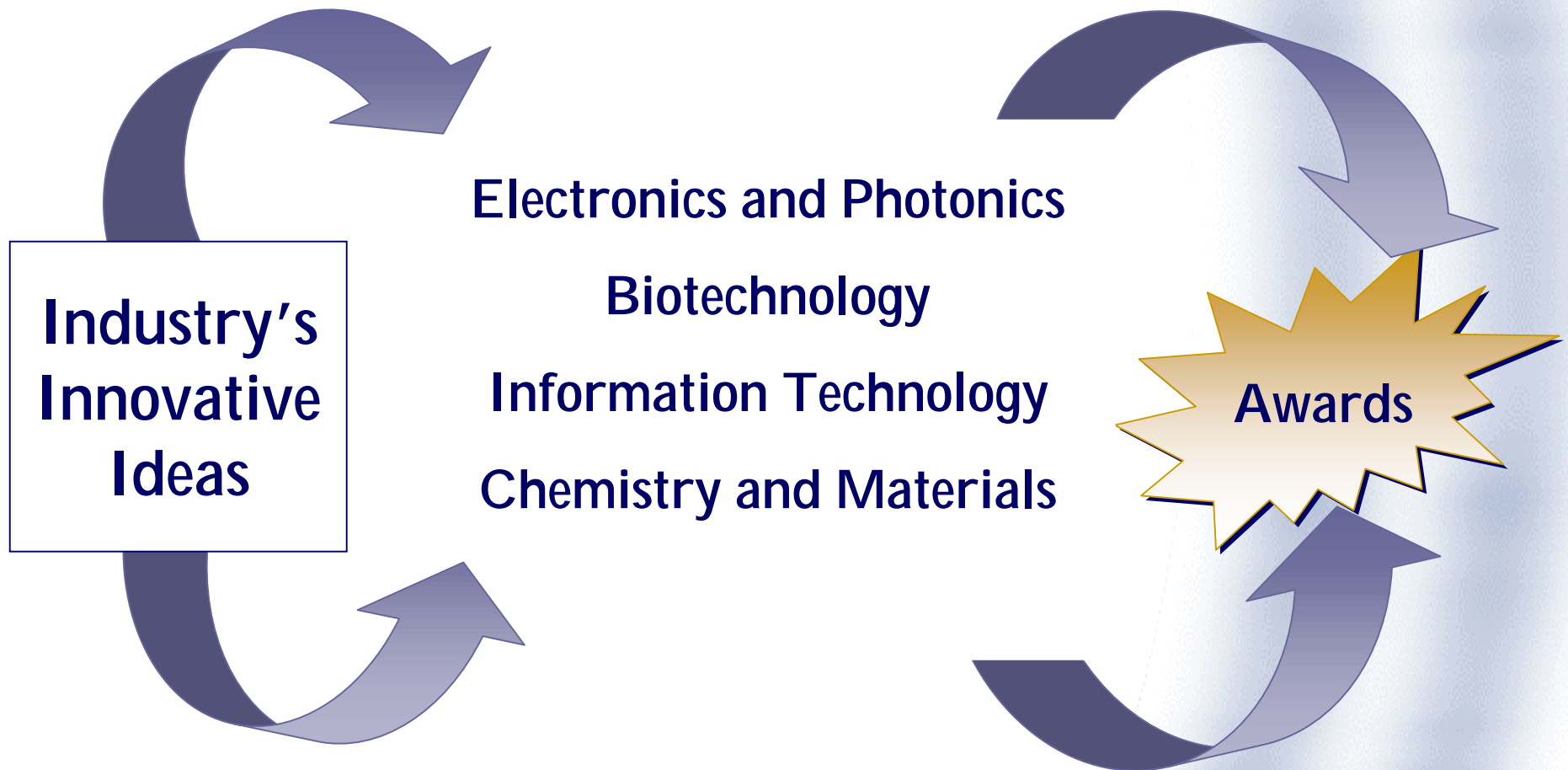
Critical Elements of a Proposal ...



- **Scientific and Technological Merit (50%)**
Innovations in the Technology
High Technical Risk & Feasibility
Quality of R&D Plan
- **Broad-Based Economic Benefits (50%)**
Economic Benefits
Commercialization Path
Need for ATP Funding

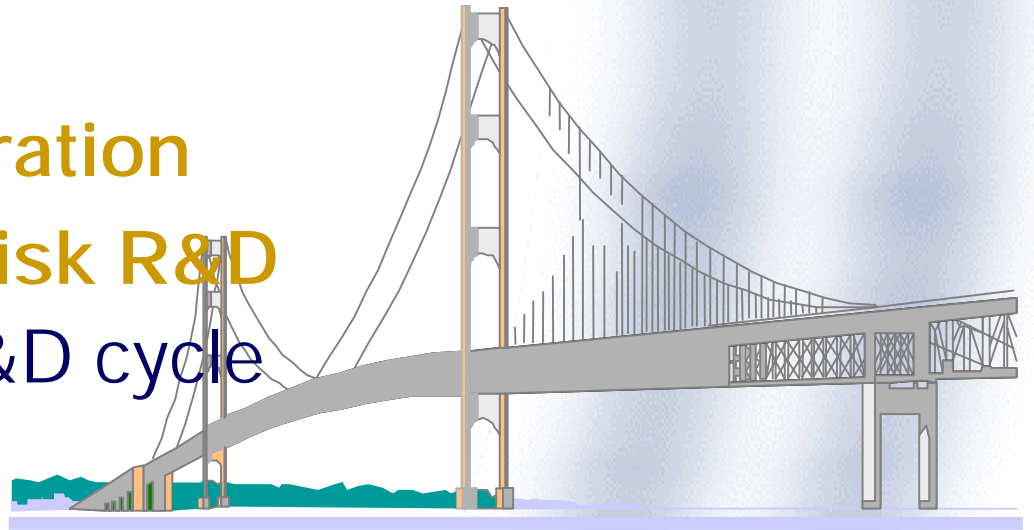
Competition Structure

2000 Technology-Specific Project Selection Committees



Program Impacts

- Developing **Leap-frog Technologies**
37% of applications represent “new-to-the-world” solutions
- Leading to **Multiple Applications**
4.5 applications per project
- Resulting in 100 **Commercialized Technologies**
- Stimulating **Collaboration**
- Accelerating **High Risk R&D**
86% ahead in R&D cycle



ITAO Relationship with Industry

- **Project Development**
 - Support industry efforts to define high-risk, innovative projects and solicit related proposals for ATP
 - Enable greater understanding of ATP criteria & objectives in the information technology community through education and outreach
- **Project Selection**
 - Main group responsible for the evaluation of information technology proposals and funding recommendations for projects that best meet the ATP criteria
- **Project Management**
 - Collaborate with companies to ensure project success
 - Government's technical & business representatives
 - Monitor project technical and business progress against agreed milestones and expenditures



ITAO Funding Background

Investments in Information Technology

ATP funding: over \$400 million

Projects: 99

Single Companies: 73

Joint Ventures: 26

Participants: 196

University Participants: 81





ITAO Areas of Interest

Examples: Systems

System Development

Quality Assurance, Dependable Computing,
Real Time Systems, Component Based SW

Electronic Commerce

Interoperability, Infrastructure, Security, e-Payment

Healthcare Information Systems

Medical Data, Telemedicine





ITAO Areas of Interest

Examples :Systems

Advanced Learning Systems

Authoring tools, Data Mining, Knowledge Bases

Human Computer Interface

Digital Video, Voice and Multimedia

Virtual Reality On the Internet

Tele-collaboration, Tele-presence, Avatars, Animation

General Information Technology Systems





ITAO Areas of Interest Examples: Applications

Intelligent Manufacturing

Robotics, Control, E-Design

IT for Transportation

Smart Vehicles, Trains and Highways

IT for Construction

Architectural Design, Engineering, Supply Chain

IT for Civil & Urban Planning

Utilities Planning, Communication, Traffic Modeling





ITAO Areas of Interest Examples: Applications

IT for Environment

Air Quality Systems, Natural Resources Modeling

Intelligent Home

Smart Appliances, Smart Room

Biometrics and Physical Security

Finger-Print, Face Recognition

General Information Technology Applications





ITAO Areas of Interest New Areas

Pervasive Computing

Portable Intelligence, Smart Appliances, Smart Room

Artificial Intelligence

Agent Technology, Search Engines

Discrete Parts Manufacturing

Tools, Systems

Quantum Computing

General Information Technology Applications





Intelligent Manufacturing



National Institute of Standards and Technology • Technology Administration • U.S. Department of Commerce



Solutions for MES-Adaptable Replicable Technology (SMART)

- *Project Objective:* Provide for the integration and interoperability of the present generation of piecemeal and customized manufacturing execution systems (MES) applications into a generalized manufacturing framework for the optimization of efficiency and agility in a large diversity of factory settings.
- *Economic Impact:* The project intends cost reductions and process improvements to the typical manufacturing cycle.

IBM (NIIP Consortium) (JV)

\$26,227,600

05/01/96 to 09/30/00



National Institute of Standards and Technology • Technology Administration • U.S. Department of Commerce



ANTS Scheduling and Execution System

- *Project Objective:* Validate a distributed computer system for factory scheduling that will increase the flexibility, responsiveness, and international competitiveness of U.S. shipyards, resulting in annual savings of \$100 million.
- *Economic Impact:* Innovations are likely to result in a new class of software products. Application of these innovations has begun in the U.S. ship building industry with potential broad application in other industries.

Deneb Robotics, Inc. (SA)

\$2,324,581

10/01/97 to 06/30/00



National Institute of Standards and Technology • Technology Administration • U.S. Department of Commerce



EECOMS: Extended Enterprise Coalition for Integrated Collaborative Manufacturing System

- *Project Objective:* Develop a new framework for people, applications and software agents to collaborate on supply chain logistics, resulting in faster delivery of products to customers, reduction of costly inventories, and an overall increase of U.S. manufacturers' competitiveness in the global marketplace.
- *Economic Impact:* Development of markets for new class of software tools. Cost avoidance for manufacturers conducting distributed operations.

IBM Corporation (JV)

\$29,658,090 11/01/97 to 12/31/00



National Institute of Standards and Technology • Technology Administration • U.S. Department of Commerce



Model Driven Intelligent Control of Manufacturing

- *Project Objective:* Develop databases and software systems for an integrated design-to-manufacturing system that allows numerically controlled machine tools to be controlled by product design data, leading to significant improvements in design flexibility and quality of manufactured parts.
- *Economic Impact:* Significant improvements in design flexibility and quality of manufactured parts.

STEP Tools, Inc. (SA)

\$2,908,185

11/01/99 to 10/31/02



National Institute of Standards and Technology • Technology Administration • U.S. Department of Commerce 99-01-4035 JB



The Federated Intelligent Product EnviRonment

- *Project Objective:* Develop and demonstrate broadly applicable technologies that will transform the product design process to make it truly concurrent with manufacturing capability, thus reducing design time, improving quality, and potentially reducing the cost of creating new products in a range of industries.
- *Economic Impact:* True accomplishment of concurrent engineering for complex multi-vendor products (e.g. jet engines) will cut costs, cycle time and advance product quality.

Ohio Aerospace Institute (JV)

\$21,437,150 11/01/99 to 10/31/03



National Institute of Standards and Technology • Technology Administration • U.S. Department of Commerce



Year 2000 Competition

Government Funding for year 2000

Competition Closed on March 8th, 2000

\$50.7 Million of first year funding

416 Proposals received at ATP

This year Competition will be
announced in Fall

Pre-proposals are accepted year around



How to Apply Algorithm

- **Step 1:** Go to ATP web site www.atp.nist.gov Click on “**Competitions**” to get information on current and past funding opportunities.
- **Step 2:** Develop your idea and contact an ITAO member in your field.
- **Step 3:** Write a four page pre -proposal. From main web page click on “**How to Apply**” and then click on “**ATP Proposal Preparation Kit - Appendix E**”

How to Apply Algorithm

- **Step4:** Develop a detailed technical idea and write the technical plan.
- **Step5:** Write a business plan and then prepare a budget.
- **Step 6:** Incorporate the feedback from the pre-proposal
- **Step7:** Submit a proposal maximum 40 pages for single company and 60 pages for joint venture.



Points of Contact ITAO

Telephone

Email Address

Harris Liebergot
Areas of Interest

(301)975-5196 harris.liebergot@nist.gov
Advanced Learning Systems, Dependable Systems, IT for Civil
Urban Planning

Jack Boudreaux

(301)975-3560 jack.boudreaux@nist.gov
Intelligent Manufacturing, Discreet Part Manufacturing,
Quantum Information Theory

Neil Christopher

(301)975-3888 neil.christopher@nist.gov
Manufacturing, E-commerce, System Integration, IT for
Construction, Artificial Intelligence

Barbara Cuthill

(301)975-3273 barbara.cuthill@nist.gov
System Development, Software Engineering, IT for
Transportation, Artificial Intelligence, Pervasive Computing

Bettijoyce Lide

(301)975-2218 bettijoyce.lide@nist.gov
Healthcare Information Systems, IT for Environment,
and Bioinformatics



National Institute of Standards and Technology • Technology Administration • U.S. Department of Commerce



Points of Contact ITAO

Telephone

Email Address

David Hermreck

(301)975-4328 david.hermreck@nist.gov

Human Computer Interface, Intelligent Home, Virtual Reality on the Internet

Omid Omidvar

(301)975-4401 oomidvar@nist.gov

Virtual Reality, Intelligent Systems, Biometrics, Security
Pervasive Computing, Bioinformatics

Jayne Orthwein

(301)975-3176 jayne.orthwein@nist.gov

Healthcare Information Systems, IT for Civil and Urban Planning,
IT for Environment

Roger Sies

(301)975-3540 roger.sies@nist.gov

Business Specialist in E-Commerce, Virtual Reality on the Internet,
IT for Construction

